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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/846,607	04/30/2001	Gerard Harbers	PHNL 000222	4771

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EXAMINER	
XIAO, KE	

ART UNIT	PAPER NUMBER
2629	

DATE MAILED: 07/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/846,607	HARBERS ET AL.	
	Examiner	Art Unit	
	Ke Xiao	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7 and 9-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 9-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5, 9-10, 12-14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara (US 4,772,885) in view of Stewart (US 5,337,068).

Regarding independent **Claim 1**, Uehara teaches an assembly comprising:

a display device provided with a pattern of pixels associated with color filters (Uehara, Figs. 3-4), and

an illumination system for illuminating the display device (Uehara, Figs. 3-4 elements 41, 43 and 63),

the illumination system comprising a light-emitting panel and at least one light source, the light source being associated with the light emitting panel (Uehara, Figs. 3-4 elements 41 and 43),

the light source comprising at least three light-emitting diodes having different light-emission wavelengths (Uehara, Figs. 3-4 elements 43a-43c),

the light-emitting diodes being associated with the color filters (Uehara, Figs. 3-4 elements 43a-43c and 63a-63c),

Uehara fails to teach that the illumination system operable to drive the three light-emitting diodes to separately control the intensity of light emitted as claimed. Stewart teaches an illumination system operable to drive three light-emitting elements to separately control the intensity of light emitted in the different light emission wavelengths and thereby change color temperature and illumination level of a picture to be displayed by the display device, wherein an intensity of light emitted by the light-emitting elements varies in response to an illumination level of the picture to be displayed by the display device (Stewart, Col. 9 lines 35-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to add the individual control of light emitting elements as taught by Stewart to the display device of Uehara in order to allow for dynamic color balancing.

Regarding independent **Claim 13**, Uehara teaches a display device for use with an illumination system (Uehara, Figs. 3-4) comprising:

a liquid crystal display panel comprising a plurality of liquid crystal elements operable to selectively allow passage of light from the illumination system (Uehara, Figs. 3-4),

at least one color filter operable to filter the light allowed to pass through one or more of the liquid crystal elements to produce one or more pictures (Uehara, Figs. 3-4 elements 63a-63c);

Uehara fails to teach that the illumination system operable to drive the three light-emitting diodes to separately control the intensity of light emitted as claimed.

Stewart teaches an illumination system that drives at least three light-emitting elements having different light-emission wavelengths to separately control the intensity of light emitted in at least one of the different light emission wavelengths and thereby change a color temperature and illumination level of the one or more pictures, wherein an intensity of light emitted by the light-emitting elements varies in response to an illumination level of the picture to be displayed by the display device (Stewart, Col. 9 lines 35-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to add the individual control of light emitting elements as taught by Stewart to the display device of Uehara in order to allow for dynamic color balancing.

Regarding independent **Claim 14**, Uehara teaches an illumination system for use with a display device (Uehara, Figs. 3-4) comprising:

a light emitting panel (Uehara, Figs. 3-4 elements 41, 43 and 63),

(Uehara, Figs. 3-4 elements 63a-63c);

at least one light source associated with the light emitting panel (Uehara, Figs. 3-4 elements 41 and 43), the light source comprising at least three light-emitting diodes having different light-emission wavelengths (Uehara, Figs. 3-4 elements 43a-43c), the light-emitting diodes being associated with the color filters in the display device (Uehara, Figs. 3-4); and

Uehara teaches a controller which controls the light emitting diodes simultaneously. Uehara fails to teach a controller operable to drive the three light-emitting diodes to separately control the intensity of light emitted as claimed. Stewart

teaches a controller operable to drive the at least three light-emitting diodes having different light-emission wavelengths to separately control the intensity of light emitted in at least one of the different light emission wavelengths and thereby change a color temperature and illumination level of the one or more pictures, wherein an intensity of light emitted by the light-emitting elements varies in response to an illumination level of the picture to be displayed by the display device (Stewart, Col. 9 lines 35-50). It would have been obvious to one of ordinary skill in the art at the time of the invention to add the individual control of light emitting elements as taught by Stewart to the display device of Uehara in order to allow for dynamic color balancing.

Regarding **Claim 2**, Uehara further teaches that the light source comprises three light-emitting diodes having different light-emission wavelengths (Uehara, Figs. 3-4 elements 43a-43c), and

the color filter comprises three color filters (Uehara, Figs. 3-4 elements 63a-63c),

a spectral emission of each of the three light-emitting diodes being substantially adapted to a spectrum of one of the color filters (Uehara, Figs. 3-4 RGB LEDs associated with RGB color filters respectively).

Regarding **Claims 3/1 and 3/2**, Uehara further teaches that the light source comprises at least one blue light-emitting diode, at least one green light-emitting diode and at least one red light-emitting diode (Uehara, Figs. 3-4 elements 43a-43c),

the color filter comprises a blue, a green and a red color filter (Uehara, Figs. 3-4 elements 63a-63c), and

in operation, the blue color filter predominantly passes light originating from the blue light-emitting diode, the green color filter predominantly passes light originating from the green light-emitting diode and the red color filter predominantly passes light originating from the red light-emitting diode (Uehara, Figs. 3-4).

Regarding **Claims 4/1 and 4/2**, Uehara further teaches that at least one of the light-emitting diodes is chosen such that the wavelength associated with a spectral maximum of the light-emitting diodes corresponds to a wavelength associated with a spectral maximum of the corresponding color filter in the visible spectrum (Uehara, Figs. 7-10).

Regarding **Claims 5/1 and 5/2**, Uehara further teaches that the wavelength lamda.ledmax associated with the spectral maximum of at least one of the light-emitting diodes and the wavelength lamda.cfmax associated with the spectral maximum of the corresponding color filter meet the relation: | lamda.ledmax - lamda.cfmax | <=5nm (Uehara, Figs. 7 and 8 clearly show that the wavelength of the diode and the corresponding filter match which satisfies the claimed limitation).

Regarding **Claims 9/1 and 9/2**, Uehara further teaches that the intensity of the light emitted by the light-emitting diodes can be adjusted on a frame-to-frame bases (Uehara, Col. 1 line 45 to Col. 2 line 36 specifically the intensity can be adjusted from frame to frame because the image being displayed can change from frame to frame).

Regarding **Claims 10/1 and 10/2**, Uehara further teaches that the intensity of the light emitted by the light-emitting diodes can be adjusted for each color on a frame-to-frame basis (Uehara, Col. 1 line 45 to Col. 2 line 36).

Regarding **Claim 12**, Uehara fails to teach that the light emitting diodes are mounted on a printed circuit board. The examiner takes official notice that mounting LEDs on PCBs is well known in the backlight display art. It would have been obvious to one of ordinary skill in the art at the time of the invention to mount the LEDs of Uehara on a PCB instead of the generic plate and electrode setup in order to simplify manufacturing and increase reliability.

Regarding **Claim 18**, Uehara further teaches that at least one color filter comprises blue, green, and red color filters (Uehara, Figs. 3-4 elements 63a-63c).

Claims 6-7, 11, 15-17, 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara (US 4,772,885) and Stewart (US 5,337,068) as applied to Claims 1-5, 9-10, 12-14 and 18 above, and further in view of the applicant's admitted prior art (AAPA).

Regarding **Claims 6/1, 6/2 and 7**, Uehara fails to teach that the spectral bandwidth of the LEDs is between 15 and 30 nm. The AAPA teaches that LEDs with such characteristic are well known and commercially available in the art (AAPA, Pg. 3 paragraphs [0036-0037]). It would have been obvious to one of ordinary skill in the art at the time of the invention to have used the LEDs with the specifications as claimed as

taught by the AAPA in order to reduce the manufacturing complexity and cost of the device since such LEDs are easily attainable.

Regarding **Claim 11/1 and 11/2**, Uehara fails to teach that the each of the light emitting diodes has a luminous flux of at least five lumens. The AAPA teaches that LEDs with such characteristic are well known and commercially available in the art (AAPA, Pg. 4 paragraph [0046]). It would have been obvious to one of ordinary skill in the art at the time of the invention to have used the LEDs with the specifications as claimed as taught by the AAPA in order to reduce the manufacturing complexity and cost of the device since such LEDs are easily attainable.

Regarding **Claims 15-17 and 19-20**, Uehara in view of Stewart further teaches the picture to be displayed by the display device comprises one of a plurality of pictures, the plurality of pictures associated with an emission standard, the emission standard associated with a standardized color triangle (Stewart, Col. 2 lines 43-66, Col. 4 lines 23-46);

the illumination system is operable to tune the light-emitting diodes such that the display device displays the picture in accordance with the standardized color triangle of the emission standard associated with the picture (Stewart, Col. 2 lines 43-66, Col. 4 lines 23-46).

Uehara in view of Stewart fails to teach that the pictures are associated with a plurality of different emission standards, comprising National Television Standards Committee (NTSC), European Broadcasting Union (EBU), and High Definition Television

(HDTV) emission standards. The AAPA teaches that NTSC, EBU, and HDTV are known standards of video display in the art (AAPA, Pg. 2 paragraph [0019]). It would have been obvious to one of ordinary skill in the art at the time of the invention to use any or all of the above standards as taught by AAPA in the device of Uehara and Stewart in order to broaden the marketability of the device of Uehara and Stewart.

Response to Arguments

Applicant's arguments with respect to Claims 1-7 and 9-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ke Xiao whose telephone number is (571) 272-7776. The examiner can normally be reached on Monday through Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

June 22nd, 2006 - kx -

SUMATI LEFKOWITZ
SUPERVISORY PATENT EXAMINER